

COMPLEX SEDIMENTARY RESPONSES TO EXPLOSIVE ERUPTIONS AT A SNOW-CAPPED STRATOVOLCANO: 1995-96 RUAPEHU, NEW ZEALAND. V. Manville¹, B.F. Houghton², K.A. Hodgson³ and J.D.L. White⁴, Institute of Geological & Nuclear Sciences, Bag 2000, Taupo, New Zealand, ²University of Hawaii, 1680 East-West Rd, Honolulu HI96822, USA, ³Lincoln University, Private Bag, Christchurch, New Zealand, ⁴University of Otago, Private Bag, Dunedin, New Zealand.

The 1995 and 1996 explosive eruptions of Ruapehu volcano, Taupo Volcanic Zone, New Zealand ejected approximately 0.1 km³ of tephra onto snow cover and ice fields on the 3000m volcano. Syneruptive sedimentary responses included snow-rich lahars, snow avalanches and icefalls. Lahars were triggered by the explosive ejection of hot crater-lake water, lake floor sediments and andesitic scoria onto the steep upper slopes of the cone where they re-mobilized entraining large volumes of snow and ice. A total of 28 lahars were triggered directly by explosive activity.

The posteruptive response has operated on a wide range of scales and has included rain-triggered lahars causing more than \$US9M in damage, ash-induced avalanches, wind-reworking, diurnal freeze-thaw, creep, sheet wash and rilling. The extent of these processes has depended on a complex interplay of factors such as slope angle and aspect, primary ash thickness and sand rainfall. Estimates of sediment yield indicate that nearly of the 1995 tephra will be removed rapidly from the cone, whereas the coarser and more permeable 1996 tephra will reside longer.